FALL RIVER ELECTRIC (PWS 7220131)
SOURCE WATER ASSESSMENT FINAL REPORT

April 28, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for the Fall River Electric, Ashton, Idaho*, describes the public drinking water systems (PWSs), the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Fall River Electric drinking water system (PWS #7220131) is a non-transient, non-community system that consists of one well. The well has high susceptibility to all potential contaminant categories: inorganic chemical (IOC) contaminants, volatile organic chemical (VOC) contaminants, synthetic organic chemical (SOC) contaminants, and microbial contaminants. Hydrologic sensitivity rated high and system construction rated moderate. Irrigated agricultural land is the predominant land use in the area of the well, resulting in high ratings for potential contaminant inventory/land use. The irrigated agricultural land use of the area and the number and location of potential contaminant sources within the delineation contributed to the overall high susceptibility ratings of the Fall River Electric well.

Total coliform bacteria were detected in the distribution system repeatedly in January 1999. However, no further bacterial detections have occurred. No SOCs or VOCs have been detected in the water system. The IOCs nitrate, nitrite, and fluoride were detected in the well but at levels far below the maximum contaminant levels (MCLs) set by the EPA. Sodium and nickel, unregulated IOCs were also detected in the well water at low levels.

Though the nitrate levels in the well were detected at low levels, the Fall River Electric well delineation crosses a nitrate priority area. A priority area is an area where greater than 25% of the wells/springs show nitrate values greater than 5 milligrams per liter (mg/L). In addition, the nitrogen fertilizer use, the herbicide use, and the total ag-chemical use have been rated as "high" for the county.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Fall River Electric's drinking water well, water protection activities should focus on correcting any deficiencies outlined in the sanitary surveys (inspections conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). No chemicals should be stored or applied within the 50-foot radius of the wellheads. Since much of the designated protection areas are outside the direct jurisdiction of the Fall River Electric, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Teton Soil Conservation and Water District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE FALL RIVER ELECTRIC, ASHTON, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the EPA to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the well and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should *not* be used as an absolute measure of risk and they should *not* be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the Fall River Electric is comprised of one ground water well that serves approximately 28 people through one connection. Situated in Fremont County, the well is located approximately 1.5 miles southwest of Ashton just off of Highway 20 (Figure 1).

There are no current significant potential water problems affecting the Fall River Electric drinking water system. Total coliform bacteria were detected in the distribution system repeatedly in January 1999. However, no further bacterial detections have occurred. No SOCs or VOCs have been detected in the water system. The IOCs nitrate, nitrite, and fluoride were detected in the well but at levels far below the MCLs set by the EPA. Sodium and nickel, unregulated IOCs were also detected in the well water at low levels.

Though the nitrate levels in the well were detected at low levels, the Fall River Electric well delineation crosses a nitrate priority area. A priority area is an area where greater than 25% of the wells/springs show nitrate values greater than 5 mg/L. In addition, the nitrogen fertilizer use, the herbicide use, and the total ag-chemical use have been rated as “high” for the county.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ performed the delineation using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT zones for water associated with the Teton Basin aquifer in the vicinity of the Fall River Electric plant. The computer model used site specific data, assimilated by DEQ from a variety of sources including the City of Ashton's well logs, other local area well logs, and hydrogeologic reports (Crosthwaite et al., 1970; Jorgensen Engineering, 2000; Whitehead, 1978; Whitehead, 1992)(detailed below).

Well #1 of the Fall River Electric drinking water system draws its water from the silicic volcanic rocks of the Yellowstone Group and the basalt of the Snake River Group. The basalt aquifer has adequate water for domestic wells because it has sufficient fracture zones that produce water. Larger yields are limited to places where the basalt flows are highly permeable. Specific capacities of some tested wells completed in the basalt have transmissivities ranging between 1,400 to 8,600 square feet per day (ft^2/day) (Jorgensen Engineering, 2000). The direction of ground water flow in the Ashton area is generally from east to west. Locally, water flows in the direction of the Henrys Fork above the Teton Basin aquifer.

The final hybrid capture zone for the Fall River Electric well trends east extending approximately two miles towards Highway 32, fanning to approximately 3/4th of a mile in width (Figure 2).

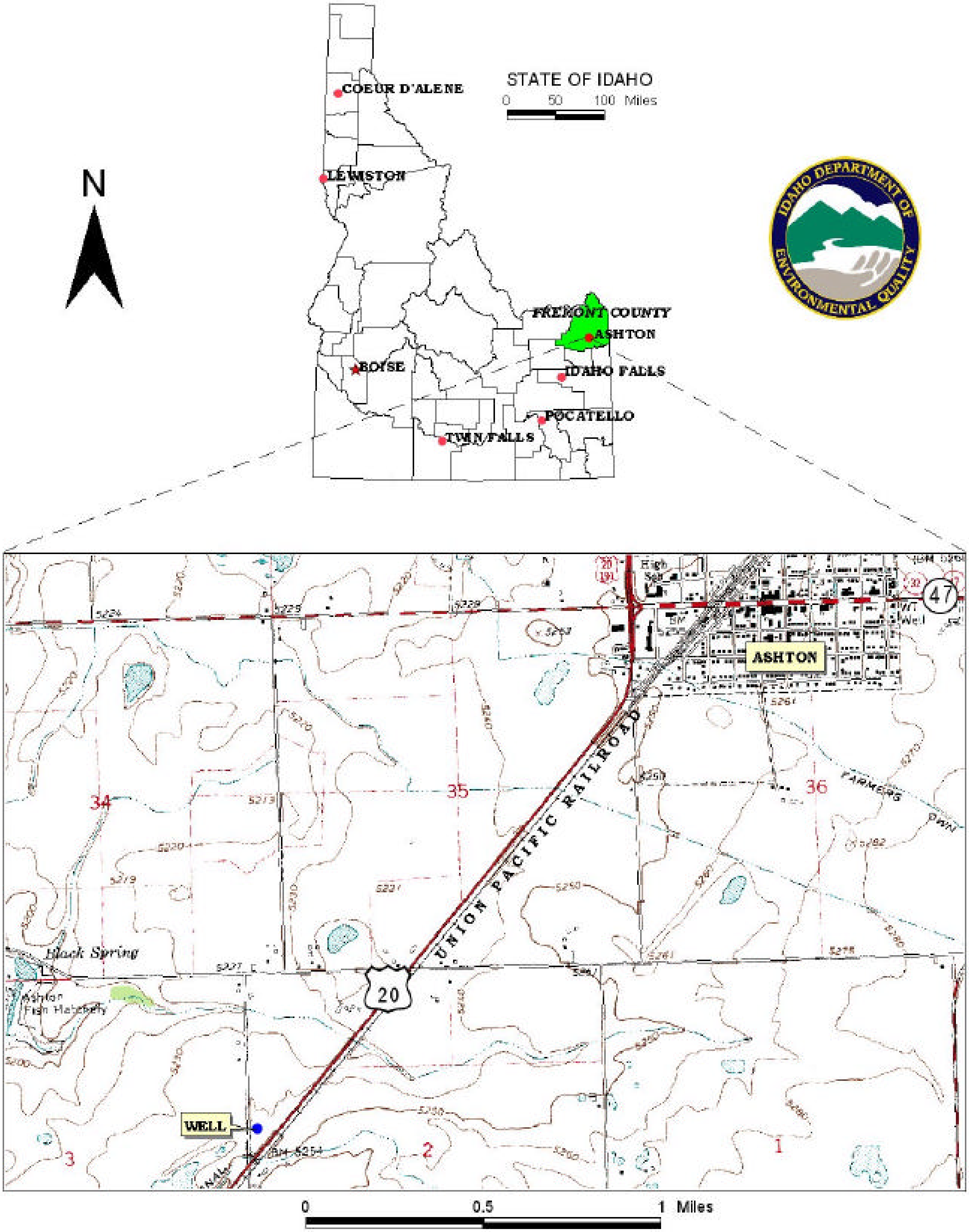
Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and others, such as cryptosporidium, and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate and surrounding areas of the Fall River Electric is mostly irrigated cropland.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

FIGURE 1. Geographic Location of Fall River Electric



Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in September and October 2002. The first phase involved identifying and documenting potential contaminant sources within the Fall River Electric Source Water Assessment Areas (Figure 2) through the use of field surveys, computer databases, and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the areas.

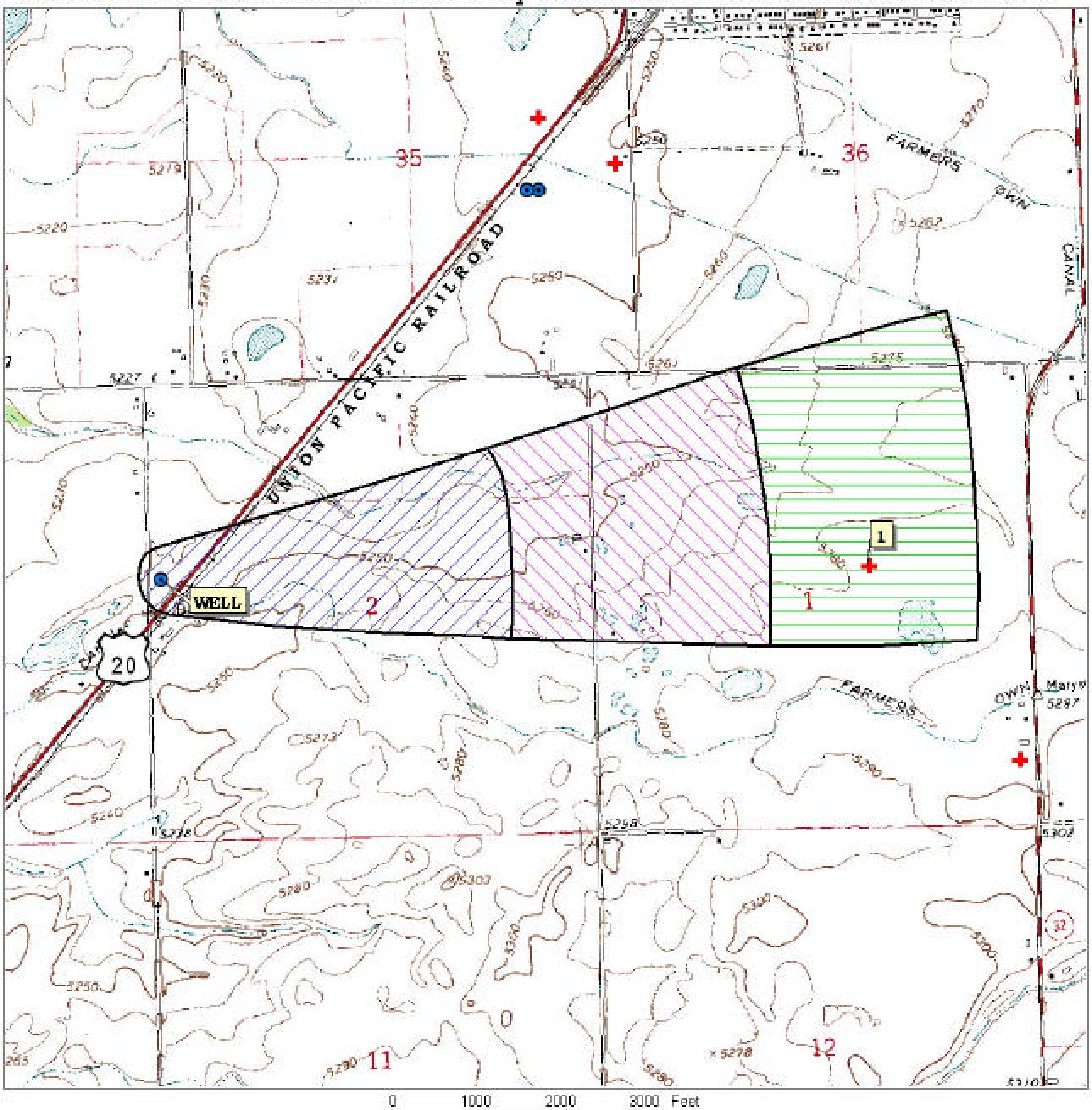
The delineated source water area encompasses an eastern trending corridor that extends for approximately two miles toward Highway 32 (Figure 2). The GIS map shows that the delineation for the well includes a canal, the Union Pacific Railroad, a city road, Highway 20, and a few ponds. The operator identified an equipment dump in the 6-year TOT zone of the delineation. Additionally, the 1999 Ground Water Under Direct Influence (GWUDI) field survey indicated the plant's parking lot to be within 200 feet of the wellhead. Table 1 below lists the potential contaminants within each delineated area.

Table 1. Well of the Fall River Electric, Potential Contaminant Inventory

Site #	Source Description[1]	TOT ZONE[2]	Source of Information	Potential Contaminants[3]
1	Equipment Dump	3–6	Enhanced Inventory	IOC, VOC, SOC
	Highway 20	0–3	GIS Map	IOC, VOC, SOC, Microbials
	Union Pacific Railroad	0–3	GIS Map	IOC, VOC, SOC, Microbials
	Road	0–3	GIS Map	IOC, VOC, SOC, Microbials
	Farmer's Own Canal	0–3	GIS Map	IOC, VOC, SOC, Microbials
	Pond	3–10	GIS Map	IOC, VOC, SOC, Microbials
	Parking Lot	0–3	1999 GWUDI Survey	IOC, VOC, SOC, Microbials

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 2. Fall River Electric Delineation Map and Potential Contaminant Source Locations



PWS# 7220131
WELL

Section 3. Susceptibility Analysis

A well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. Each of these three categories carries the same weight in the final assessment, meaning that a low score in one category coupled with higher scores in the other categories can still lead to a overall susceptibility of high. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheet for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity rated high for the Fall River Electric well (Table 2). The soils surrounding the area of the wellhead are in the moderate to well-draining soil class, according to the National Resource Conservation Service (NRCS). Poor to moderately draining soils tend to impede the migration of contaminants to the aquifer. A well log indicates that the vadose zone is composed of predominantly permeable materials, the water table is only 20 feet deep, and an aquitard (at least 50 feet of impermeable materials) is not present above the well's producing zone.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

System construction of the Fall River Electric well rated moderately susceptible to contamination. The well log indicated that the well was constructed in May 1998 to a depth of 720 feet below ground surface (bgs). A 10-inch diameter (0.250 inch thick) casing was placed from two feet above ground to 40 feet bgs into basalt, and an 8-inch casing (0.250 inches thick) was placed from two feet above ground to 124 feet bgs into brown rhyolite. An open hole exists from 124 feet bgs to 720 feet bgs. Perforations exist between 64 feet bgs and 124 feet bgs. An annular seal of cement was placed from ground level into basalt at 40 feet bgs. The 1999 sanitary survey states the wellhead and surface seal are maintained to standards, and that the well is properly protected from surface flooding. The well is also located outside a 100-year floodplain. The rating was lowered to moderate because neither the casing nor annular seal extend into low permeability units, and the well's highest production does not come from more than 100 feet below static water level.

Though the well may have been in compliance with standards when it was completed, current public water system (PWS) well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Because the well did not meet all current construction standards, an additional point was added to the system construction score.

Potential Contaminant Source and Land Use

The well of the Fall River Electric rated high for IOCs (e.g. nitrates arsenic), VOCs (e.g. petroleum products), and SOCs (e.g. pesticides) and moderate for microbial contaminants (e.g. bacteria). The contaminant sources within the 3-year TOT zone, and the predominant irrigated agricultural land use contributed to the potential contaminant source/land use rating.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC at the well, or a confirmed detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the Fall River Electric well rated high for all potential contaminant categories.

Table 2. Summary of Fall River Electric Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	H	H	M	M	H	H	H	H

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Overall, the Fall River Electric well rated high susceptibility to all potential contaminant categories: IOC contaminants, VOC contaminants, SOC contaminants, and microbial contaminants. The irrigated agricultural land use of the area potential contaminant sources within the delineation contributed to the overall high susceptibility ratings of the Fall River Electric well.

Total coliform bacteria were detected in the distribution system repeatedly in January 1999. However, no further bacterial detections have occurred. No SOCs or VOCs have been detected in the water system. The IOCs nitrate, nitrite, and fluoride were detected in the well but at levels far below the MCLs set by the EPA. Sodium and nickel, unregulated IOCs were also detected in the well water in low concentrations.

Despite existing within a nitrate priority area (an area where greater than 25% of the wells/springs show nitrate values greater than 5 mg/L), and existing within a county with high nitrogen fertilizer use, herbicide use, and total ag-chemical use, nitrate levels in the well continue to be detected at low levels.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Fall River Electric's drinking water well, water protection activities should focus on correcting any deficiencies outlined in the sanitary surveys. No chemicals should be stored or applied within the 50-foot radius of the wellheads. Since much of the designated protection areas are outside the direct jurisdiction of the Fall River Electric, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Teton Soil Conservation and Water District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive source water assessment protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office (208) 528-2650

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at 1-208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Crosthwaite, E.G., et al., 1970. *Ground water Aspects of the Lower Henrys Fork Region, Eastern Idaho*. U.S. Geological Survey, Water Supply Paper 1879-C.

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Appendix A

Fall River Electric Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : FALL RIVER ELECTRIC   Well# : FALLRIVEREONLY
Public Water System Number 7220131   2/26/03 10:07:18 AM

1. System Construction		SCORE			
Drill Date	1998				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	5	5	5	5
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	9	5	5	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
	Total Potential Contaminant Source / Land Use Score - Zone 1B	18	16	16	12
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		30	26	28	14
4. Final Susceptibility Source Score		16	15	16	15
5. Final Well Ranking		High	High	High	High